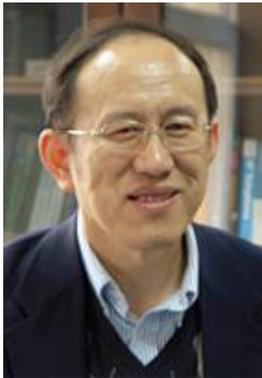


Plenary Lectures

Title: Cyber-physical Systems in Intelligence Age

Abstract: Networking, intelligence and merging of information and physical systems are the trend of information science and technology development. Cyber-physical systems is the basis for the new industrial revolution and energy revolution. Cyber-physical energy system (CPES) in a broader sense provides a desirable infrastructure for efficient energy production and consumption with uncertain energy resources.

This speech will focus on the structure of CPS with the role of human in systems and the intelligence needed for CPS. The requirements for CPS in the sectors of manufacturing, energy, transportation, aerospace and astronautic engineering are introduced and analyzed. The challenges and opportunities for CPS are discussed with regards to cyber-physical modeling, intelligence design and planning, optimization and control, and integrated security.



Biography: Professor Xiaohong Guan received his B.S. and M.S. degrees in Control Engineering from Tsinghua University, Beijing, China, in 1982 and 1985, respectively, and his Ph.D. degree in Electrical and Systems Engineering from the University of Connecticut in 1993. He was a senior consulting engineer with Pacific Gas and Electric from 1993 to 1995. He visited the Division of Engineering and Applied Science, Harvard University from Jan. 1999 to Feb. 2000. From 1985 to 1988 and since 1995 he has been with the Systems Engineering Institute at Xian Jiaotong University, Xian, China, and was appointed as the Cheung Kong Professor of Systems Engineering in 1999, and Dean of School of Electronic and Information Engineering since 2008. From 2001 he has also been with the Center for Intelligent and Networked Systems, Tsinghua University, Beijing, China, and served the Head of Department of Automation, Tsinghua University, 2003-2008.

Professor Guan is a member of Chinese Academy of Science and IEEE Fellow. He has been serving the Editor of IEEE Transactions on Smart Grid since 2014. His research interests include economics and security of networked systems, optimization based planning and scheduling of electrical power and energy systems, manufacturing systems, etc., and cyber-physical systems including smart grid, sensor networks, etc.